

Vigyan Ashram Status Report

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A] Technovation-2024: IBT student's innovation exhibition:

The annual 'Science & Technology exhibition' of projects done by 'Introduction to Basic Technology (IBT)' schools across Maharashtra state was held on 22nd November at JPNC, Pune. This year 36 teams participated in the exhibition. These projects are based on real life need identified by students. Students exhibited projects on following theme: Wild-life conflict, waste-water recycling, drudgery reducing tools, post-harvest technology etc. Following are winner of the project challenge –

- 1st Prize: 'Rice Threshing Machine' Shree Bhairvnath Madhyamik Vidyalay, Vahangaon (Pune).
- 2nd Prize: 'Root Extractor' Rachna Trust Ashram Shala, Dhondegaon (Pune).
- 3rd Prize: 'Adjustable Colour Roller Stick' VPU Ashram shala, Waghera (Nasik).
- Aspirational Award: 'Wild Safety Kit' Kulswami Khanderao Vidyalay, Hivare (Pune).

Approx 550 Students from various schools in kothurd area visited exhibition & interacted with students' teams. Our DIC alumni, Volunteers from CSR partners and STEM educators from other organisations were invited



Winner of the Technovation Competition



Demonstration to Jury members

as jury members. We are thankful to them for their contribution. Our CSR partners representative Mrs. Uma Krishnan (TATA Technologies), Mr. Yogesh Kapase (Schaeffler India) and Mr. Kiram Indamdar and Mr. Chaitanya Nadkarny (Trustee, STARS Forum) were chief guests for the program.

B] Make-a-thon for ITI students:

Make-a-thon training for students of 'Industrial Training Institute (ITI)' was conducted during 25th to 29th November at Pabal campus. 21 students of 'Welder & fitter trade' from CSSS-Industrial Training Centre (Shirur, Pune) participated in 5 days residential training. Students learned 'Design-Thinking' method of innovation while learning skills in arch & CO₂ welding, sheet-metal bending, powder coating, plasma cutter skills. Students designed & fabricated plate rack for kitchen, exhaust chimney & movable working table for food-lab as their project work. This was a 3rd Make-a-thon under MAHLE Engineering Services CSR support.



C] Social Innovator Fellowship for BSF technology:

Design Innovation Centre (DIC) fellow Mr. Mahesh Shinde got selected for 'Social Innovation Fellowship-2024' given by Schaeffler India. Fellowship aims to recognize social entrepreneurs creating sustainable solution with positive impact on society. Mahesh is working on 'Black Soldier Fly (BSF) based bio-waste' recycling system. He has incorporated Pratheen Eco Solutions (PES) LLP for commercialization of technology. His idea was shortlisted from 276 entries from 25 states. On 6th November, 10 social entrepreneurs were selected for fellowship program which includes award of Rs.1.5 Lakh and business incubation training support from Indian Institute of Management (Amhedabad). We are very thankful to Eaton India Foundation and Department of Science & Technology (SEED Division) for their support in development & field testing of technology.



D] Installations of new sewing machine under project ASMITA:

ASMITA project is to develop training cum production center on fashion designing at Vigyan ashram. Installation work of new sewing machines in establishing women led-tailoring unit (ASMITA) project has

started. We have industrial sewing machine set up that includes USHA- S2 & S2B (4 units each), USHA- 4 thread overlock (4 units), USHA-Rex overlock (3 units), USHA Embroidery (1 Unit), Jack-JK 781G & JK1377E & T3 (1 each), Ironing table (2 units), Cloth cutting (1 unit) and Pedal sewing (4 units). Machine vendors provided necessary operating & basic trouble shooting training to instructors on 29th & 30th November.



Machines are installed under ASMITA project

E] Technology on-boarding & training updates under TAP-RISE:

Following activities were undertaken through 'Technology Acceleration Platform for Rural Innovation & Social Entrepreneurship (TAP-RISE)' project

- Plant Tissue Culture (PTC) technology transfer: Ms. Shrutika Gaydhane and Dr. Arun Dixit attended PTC technology training at Vivekanand Institute of Biotechnology (VIB), Nimpith (Kolkata) during 24th to 30th November. A 7 days training was aimed to learn mass multiplication technology for 'Yam-fruit' developed by VIB under DST-SEED division support. They learned process flow of PTC including x-plant selection, disinfection protocol, media preparation, culture bottle preparation etc. while working in PTC unit of VIB.



Shrutika learning tissue culture @ VIB

- Engineering drawing: Dr. Yogesh Kulkarni visited Gorakhpur Environmental Action Group (GEAG) to identify scalable technologies on 9th Nov. We have started work to make a Computer Aided Design (CAD) for Groundnut De-husking and Rice Seed Sower technology.
- Patenting service: A patent registration consultancy service was provided to Barefoot College (Tilonia, Rajasthan) for their Solar pico-projector and IoT based solar charger technology.

F] DBRT skill training update:

A course curriculum design & alignment as per new guidelines of National Council for Vocational Education and Training (NCVET) started for DBRT course. We are working with National Institute of Open Schooling (NIOS) for designing a new curriculum as per guidelines.

DBRT course picked up momentum after Diwali vacations. Following are some of the highlighted learning activities of the November month -

- **Energy & Environment section:** Students completing electrification of 'ASMITA – Women led tailoring' unit. They completed installation of distribution points, Miniature Circuit Breaker (MCB), 21 plug points for sewing machine, tube-lights etc. Students also learned making of an 'earth pit' and installed energy meter. Total value of their work was Rs.36,879/-. Apart from this, student learned basic overhauling of diesel generator while replacing fuel pipe and gravity measurement for lead-acid batteries.
- **Workshop section:** In the workshop section, students learned skills in powder coating, CNC wood router machine, ferro-cement construction and basic engineering drawing (isographic & orthographic) skills. Team of students completed interior wall-painting work for kitchen and ladies hostel building. Total cost of work was Rs.46,167/- including students earning of Rs.9,539/-. Team of 4 students also completed fabrication & installation of sliding windows for ASMITA unit. Total community service value of work was Rs.78,444/- (student earning Rs. 8,820/-).
- **Home & Health section:** Students processed 48 kg bread flour for weekly kitchen supply. Ms. Ganga (DBRT alumni student) taught students different cake making skills on 17th & 18th November. Student also processed 18 kg raw papaya and 3 kg tamarind for making candy & sauce. Total value of their community service for the months of November was Rs.12,330/-.
- **Agriculture & Animal husbandry section:** Students tested 4 soil and 2 water samples for farmers in soil analysis lab. They planted 300 seedlings of capsicum and installed drip irrigation system in polyhouse. Students also harvested 14 kg lettuce from hydroponics, 12 kg pigeon pea (tor-dal), 8 kg Papaya, 35 kg green and 60 kg dry fodder from their farming plots.



Electrical wiring for Sewing machine room



Capsicum plantation

Tragedy stuck @ animal husbandry department: Death of Cow

- Due to intestine infection cow named 'Laxmi' died in dairy farm on 9th Nov. A blood testing, X-ray profiling, treatment of private & government veterinarian treatment has been tried for 3 week. Laxmi was 2.5 years old and milking animal (Cost Rs.60,000/-). In the last six month, one goat buck (Rs.50,000/-) and two She goats (Rs.35,000/- total) died for unknown reasons. We are suspecting infection due to 'Silage' and now decided to monitor quality of silage.

Computers & service sector:

In computer section, students' practices blogging & desktop publication skills. They also learned basic programming in 'scratch', use of AI tools for wall-painting, poster making in Canva etc. Team of girls learned & practiced skills like hairstyle, hair straightening, waxing, eye brow, bleach & makeup, etc. in beauty & wellness classes.

F] Technology development & Design Innovation Centre (DIC) updates:

DST-SUNIL project updates:

Black-Soldier-Fly (BSF) based composting & poultry farming:

- A domestic egg incubator (150 egg capacity) is installed at Asane village (Ambegaon block, Dist-Pune) on 15th November. Mr. Anil Gade (Future Innovative System) conducted one day training for hatching egg selection, machine operations & daily record keeping.



Egg incubator installation and training

- Ranajeet & Ganesh visited Sakhar and Pasli village cluster (Velha block, Dist-Pune) on 21st & 22nd November. They met backyard poultry farmers to overall project progress, economic benefits and challenges. Farmers are satisfied on intervention and demanding chicks for upcoming season.

- Ganesh conducted 3-day on-field training program on 'sustainable backyard poultry farming' at Ashta village (Dahanu block, Dist- Palghar) during 25th to 27th November. Training was attended by 45 tribal beneficiaries to learn brooding, bamboo cages, vaccination, feed management skills through live demonstration. Training was organized in collaboration with TNS foundation as local partner.

- Polyhouse climate control system development:

Three units of temperature-humidity sensor & data logger are installed at polyhouse farmers in Kharpudi (Rajgurunagar block, Pune). Objective of these installation is to field test sensors accuracy, data transmission with GSM



module and battery-back up of the units. Through these loggers, we will also get field data on climatic

conditions for rose crop cultivation in polyhouse. We are also assessing farmers need for automated climate control system.

- At Pabal campus, Tejaswini completed data collection work for 'heat absorption' and 'water evaporation' requirement for evaporative cooling in polyhouse. She found, at sun-zenith point (11:00 am to 2:00 pm) polyhouse structure absorbs on an average 17.54 KJ/Sec and to counter this heat, 7.84 gm/Sec water is required to be evaporated using fan-pad & fogger systems.



Photosynthesis measuring machine

- A field-demonstration of using Phosphate Rich Organic Manure (PROM) was conducted on 16th November for the polyhouse farmers of Kharpudi village. Krishi Vigyan Kendra (Nayarangaon, Pune) and representative of Green Planet organics Pvt Ltd guided farmers on maintaining soil health, advantages of PROM application and fertigation schedule.
- Sidhandh successfully fabrication of LPG based sanitary pad incinerator and installed at Jnana Prabhodhani, Harali (Solapur). It has capacity to incinerate 5 pad per batch. He has also trained girls & hostel rector on regular use & basic maintenance of the unit.
- In the month of November, 34.7 metric tons (MT) of bio-waste was processed with Black Soldier Fly (BSF) larvae at Rajgurunagar Municipal Council (RMC) dumping ground. Total 191.82 kg (15 to 20 times less than expected) of BSF pupae were produced through this processing and was used for breeding chamber. Mahesh is targeting 2 ton/day waste processing but still struggling with rats & mongoose attack. Mahesh also installed fan-pad based cooling system to control temperature of chamber in 25 to 30 Deg C in breeding chamber.



Incinerator installed

Red-Chilly dryer:

- A fabrication work has started for new version of Solar Dome Dryer (V2). New version has modified central vent, side curtains for easier loading. V2 model will be displayed & field tested for farmers feedback at National Conclave on Rural Technology organized at Narmadalaya (Madhya Pradesh) in Dec 2024.

Other research-fellow projects:

- Megha Sonkambale (Msc Chemistry) joined DIC fellowship program. She worked on calibrating flame-photometer, UV spectrophotometer and standardized process for calcium analysis for tap water samples. She found 30.1 ppm calcium content in tap water Pabal campus. This indicates hard water. This analysis is important for deciding fertigation dosing of hydroponics system.
- Megha worked on Dissolved Oxygen (DO) analysis for Deep Water Culture (DWC) based hydroponics system. Dissolve oxygen in Tank C was 5.6 mg/lit; it was 4.4 mg/lit in Tank B and almost 0 mg/lit in Tank A. (Min dissolve oxygen is not favourable for root growth). These results are useful in designing air-blower capacity & diffusors quantity for DWC systems.
- Pranit & Megha prepared 400 units of H₂S bottles for potable water testing. They prepared 10 units of Organic Carbon (OC) testing kit as per BARC technology package.
- Team of 7 PhD students from IIT (Mumbai) visited Pabal campus on 10th November to study research methodology and technology development project.
- Suhas participated in round-table discussion on 'unifying efforts for sustainable agriculture' on 16th November organized by EarthON Foundation at Ahilyanagar. Discussion was aimed to develop & disseminate sustainable technologies in farming & rural development.



Estimation of calcium from Tap water

G] Entrepreneurship Development Program (EDP) update (VATF):

Epoxy resin art & furniture: A two day's hands-on training on 'Epoxy resin-based art & furniture' enterprise was conducted on 9th & 10th November at Pabal campus. Training was attended by 6 budding entrepreneurs to learn various skills like selection of pine-wood, its cutting & polishing, use of different polish grades, using epoxy resin casting & use of fillers. Participants made a study table top, wall-clock and flower hangers as their hands-on learning activities along with Mr. Anil Gadhe (expert trainer). Saurabh conducted costing and business planning sessions.



Epoxy training

WSHG training workshop: A one day entrepreneurship training workshop was conducted for Women Self-Help Group (WSHG) at Wai (District: Satara). Training was organized in collaboration with Seva Sahayog Foundation & Garware Yuva Vikas Kendra. Total 52 WSHG members attended training to learn identifying business opportunities, conducting market survey. They were also introduced with various technology-based business opportunities. Various support services from EDP department support were informed to the participants. After the workshop, total 10 participants register for 'social media' marketing & licencing support.



EDP for Self Help Group @ Wai

Marketing linkage & mentoring support:

- Ganesh visited Rajesh Kasar on 14th November at Peth-Paragoan (Ambegaon, Pune) to guide him on construction of new poultry shed. Rajesh is DBRT (Batch 2018-19) students. He has his electrical & motor re-winding shop and now venturing into poultry farming business.
- Saurabh visited Mr. Kunal Powar (Madhuban restaurant at Baramati) and Mr. Aniket Korade (fabrication & sliding window, Taradgaon) on 21st & 22nd November for on-field mentoring support.
- On 28th November, Saurabh visited Manavya NGO at Bhugaon (Pune) to meet DBRT alumni & guided them in their enterprises.
- Priyanka provided social media promotion and product label design support to Mr. Datatyre Kolhe (cosmetics & oils), Mrs. Yamini Derange (bakery & millet products) and Mrs. Ashwini Tangsale (millet products).
- Adity provided enterprise registration & licencing support to 7 new enterprises (5 Udyam Adhhar & 2 FSSAI licencing)



SUCCESS STORY

मच्छिंद्र झोडगे

“मी शेती करताना एकाच वेळी विविध पिकांची लागवड करायची. त्यातल्या त्यात मी जांभळाची झाडे मोठ्या प्रमाणात लावली होती. जांभळाचा हंगाम आला की, झाडांवरून पिकलेली फळे खाली पडून वाया जात होती. याची दखल घेऊन मी विज्ञान आश्रमाच्या मदतीने जांभळापासून जॅम, सरबत आणि स्क्वॅश बनवण्याचे शिकलो. या नवीन कल्पनेमुळे मी शेतीबरोबरच दुसरा व्यवसाय सुरू केला. 'झोडगे फ्रेश फार्म' या नावाने मी जांभळापासून बनवलेले उत्पादन बाजारात विकायला सुरुवात केली.”



झोडगे फार्म

पावळ
ता.शिरूर, जि.पुणे.

● www.vigyanashram.com

● www.startupsarathi.vigyanashram.online

☎ 7774073920



- Vishal conducted 1 day awareness workshop on 'technology based rural enterprise opportunities' for 30 tribal youth at Kushare village (Ambegaon block) on 28th November. Workshop was organized in collaboration with local NGO Maharashtra Arogya Mandal.



Hero of the month:

Mr. Laxman Joshi started his dairy products enterprise 'Satu Marde Vandhan Vikas Vendra' At- Junnar (Pune). It's a group enterprise formed with the support of Ministry of Tribal Affairs and Tribal Co-Operative Marketing Development Federation of India Limited (TRIFED). We are providing skills training & technical support from EDP. Laxman is providing employment opportunity for 5 group members.

Satu Marde Vanadhan Vikas Kendra

H] Introduction to Basic Technology (IBT) program updates:

IBT Maharashtra:

- School Innovation Marathon: Vigyan Ashram team has mentored 18 IBT schools to participate in 'School Innovation Marathon.
- Kishor & Komal submitted research paper "Fostering Innovation and Inclusivity: Opportunities, Challenges, and Way ahead through Vigyan Ashram's school innovation programs". Paper is selected for the 5th International Conference on Creativity and Innovation at/for/from/with Grassroots (ICCIIG 5). The conference is organized by the Grassroots Innovations Augmentation Network (GIAN) in collaboration with the Centre for Management in Agriculture (CMA) at IIM Ahmedabad. The examples of productive-work based learning & technology dissemination activities through IBT schools are discussed in the said paper.



Students learning highlights:

- IBT students at Gram-Prabodhini Vidyalaya (Salumbre, Pune) harvested rice crop in their agriculture section. Students started work for this crop on 13th June on approximately 1100 m² area. They learned various farming skills like soil testing, preparation (ploughing), seed sowing, weeding, fertilizer application etc. Students maintained very good record of project & harvested 434 kg of rice worth Rs.17,630/-. They earned profit Rs.12,420/- after deducting Rs.4,939/- cost-of-cultivation.

Gram Prabodhini, Salumbre

- Students of engineering section at New English School (Dhamari, Pune) installed drip irrigation system for tree planted at school premises. Students learned basic plumbing skills while learning in teams to fix PVC pipes, drip lateral line and drippers.

Updates on Learning-By-Doing (LBD) and STEM program (STARS Forum):

- During November, Four training programs were conducted with the participation of 353 LBD teachers. LBD teachers learned importance of 'learning by doing' program in context with New Education Policy (NEP-2020). The training programs are organised at SIRD, Lucknow and Samagra Shiksha. Experts from Vigyan Ashram and STARS Forum are working as resource personnel. This is part of training of 2400 teachers in LBD activities till March 2025.
- Dr. Yogesh Kulkarni visited 2 LBD schools at Gorakhpur to monitor on-going project activities on 9th Nov. He interacted with school students on learnings through hands-on activities, curriculum linkages etc. also met school administration for sustainability of program.



LBD training program @ Lucknow



Dr Yogesh visited school @ Gorakhpur

- Ms Pramila Manoharan (Education Specialist, UNICEF) visited Basic School Naubasta (Lucknow) on 20th November. She interacted with the students on their learning activities, its impact overall learning outcomes and appreciated school admin, educational department support.
- UNICEF has approved implementation of STEM learning program in 84 Kasturba Gandhi Balika Vidyalaya's in Jharkhand.

I] Atal-Tinkering-Lab (ATL) & DIY lab update:

Teachers training program:

- A Low-Cost-Maker-space (LCM) training program for teachers of Telangana state was conducted at ZPHS (Boys) Biknoor, Kamareddy (27th to 29th November) & TTWRS, Devarakonda, Telangana (28th to 30th November). It was 3-day training workshop aimed to introduce new STEM activities along with new tools like Tinkercad and paper circuits. Training was attended by 20 teachers and District Science Officers (DSO) from Telangana state.



Training of Maker Space in Telangana

- Low-Cost-Maker-space (LCM) training program was conducted during 20th to 22nd November at Government Girls High school, Chitradurga (Karnataka). Training was attended by 8 teachers from Kasturbha Gandhi Balika Vidyalaya (KGBV) and Govt Girls High School (GGHS). Teachers learned conducting training with DIY kits, participation on ‘Seed The Future Entrepreneur’ program, ATL hub centre activities in 3 days training workshop.



Training of DIET nodal officers

- A 3 days training for District Institute of Education & Training (DIET) nodal officers was conducted from 26th to 28th November at DSERT office Bangalore (Karnataka). Training was attended by 28 DIET officers to learn Atal Tinkering Lab (ATL) activities, curriculum linkages, New Education Policy (NEP).
- Ms. Sadhna Panday (Education specialist, UNICEF) visited state-hub ATL at ZPHS Karmanghat, Hyderabad on 13th November. She interacted with students on learning activities, its impact on regular schooling and also met with the instructor & school administration.

- Team also conducted following online sessions for ATL instructors & students in Andra-Pradesh, Telangana as Karnataka as:

Date	Topic	Link
Andra-Pradesh		
12/11/2024	Rack and Pinion Mechanism	Click Here
19/11/2024	Design, code and publish: Building apps with MIT App Inventor	Click Here
29/10/2024	Automatic vehicle stopping system	Click Here
Telangana		
06/11/2024	Tinkercad and 3D Designing	NA
20/11/2024	Rack and Pinion Mechanism	Click here
Karnataka		
08/11/2024	Light Automation	Click Here
15/11/2024	Arduino Pin configuration	Click Here
29/11/2024	Tinkercad and Pepakura	Click Here

Do-It-Yourself (DIY) lab update:

- During 7th to 9th Nov, a residential DIY training workshop was conducted for 26 students of Puvidham Alternative School (<https://puvidham.in/>) at Pabal campus.
- A half-day hands-on training workshop was conducted for 90 IBT students on 22nd November. These students visited DIY lab (Pune) as a part of Technovation exhibition. They learned making of shadow-box (light reflection), simple circuit (paper electronic) and laser cutting for art & craft activity.
- A weekly membership students learned construction of simple musical instrument like guitar, drums, piano by using basic electronics & laser cutting. Students also enjoyed utilizing coconut shell for drum making, 3D printed cars as their regular learning activities.

J] Other tit-bits:

- Wikipedia team completed proof-reading work of 3 books comprising 177 pages.
- Mr. Yogesh Bijlani (Program Director RuTAG RSCV), Mr. Hemant Gadgil & Mr. Salim Husefa (La-Foundation) visited Pabal campus on 6th Nov to discuss establishing RuTAG Smart Village Cluster program.
- Management Committee (MC) meeting of Vigyan Ashram was held on 24th November at Pabal campus. Committee members discussed important activities in skills training, technology development, infrastructure development, admin issues & decisions were made.
- Mr. Harish Jadhav from Anubhav Trust (Karjat, Raigad) visited Pabal campus on 27th November for training on Public Financial Management System (PMFS).
- Akshay Chaudhary resigned from his post (Educational program coordinator) for better prospects in social field. We wish him best for future endeavours.
- Weather record – Rainfall of the month – 00 mm (Total: 596.44 mm), Max temp-32.00° C, Min Temp – 9.00° C, Humidity –82%, Water height in well– 3.05 M.



Management committee members @ Ashram

- vii. Energy consumption record- Electricity unit – III Phase-995 units, I Phase import- 2393 units, Export- 152, Solar generation (off-grid)-55 units, DG used – 03.30 Hrs, Biogas- 38.46m³ (dung used 961 kg)
- viii. Animal Husbandry section update – Milk production – 424 Kg (Gross profit Rs: 1890.00).
- ix. Online visitors: www.vigyanashram.com – 1135 (Organic search- 602, Direct search-533). Campus tour visitors: 74.

KJ Data Report: <https://tinyurl.com/mvjcd8jv>

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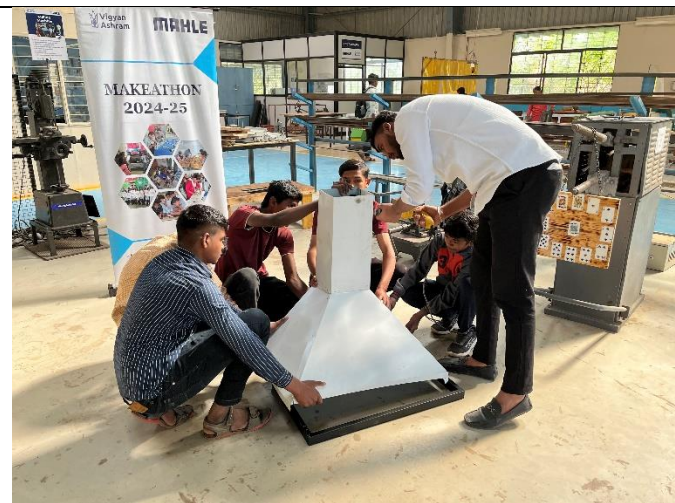
Photo Gallery:



Students from Puvudham learning screen printing @ Fab lab



Poultry Training @ Talasari



IIT students Makeathon @ Pabal



Learning to operate button stitch machine

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